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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/589,986	12/07/2006	Ertugrul Arpac	P30321	2453
7055 7590 09/30/2011 GREENBLUM & BERNSTEIN, P.L.C. 1950 ROLAND CLARKE PLACE RESTON, VA 20191			EXAMINER CHEN, VIVIAN	
			ART UNIT 1787	PAPER NUMBER
			NOTIFICATION DATE 09/30/2011	DELIVERY MODE ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

gbpatent@gbpatent.com  
pto@gbpatent.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/589,986	<b>Applicant(s)</b> ARPAC ET AL.	
	<b>Examiner</b> VIVIAN CHEN	<b>Art Unit</b> 1787	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 13 May 2011.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 52-88 is/are pending in the application.
- 4a) Of the above claim(s) 65 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 52-64 and 66-88 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>8/9/2011; 5/13/2011</u>                                       | 6) <input type="checkbox"/> Other: _____                          |

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## **DETAILED ACTION**

1. Claims 1-51 have been cancelled by Applicant.

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 5/13/2011 has been entered.

### ***Claim Rejections - 35 USC § 112***

2. The rejections under 35 U.S.C. 112, second paragraph, in the previous Office Action have been withdrawn in view of the Claim Amendments filed 5/13/2011.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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4. Claims 52-64, 66-88 are rejected under 35 U.S.C. 103(a) as being unpatentable over:

JP 04-292677 (JP '677),

in view of ANDERSON ET AL (US 6,387,519),

and in view of KUBOTA ET AL (US 6,039,796).

JP '677 discloses a curable coating composition comprising a polymer binder derived from polyester polyols and/or acrylate polyols in amounts of 10-80 wt% and isocyanate compounds in amounts of 2-50 wt%, a functionalized fluoropolymer (e.g., copolymers comprising tetrafluoroethylene and fluorovinyl ethers, etc) with functional groups (e.g., carboxyl groups, hydroxyl groups, and/or mixtures thereof, etc.) in amounts of 2-80 wt%, sols of inorganic oxides (e.g., oxides of silicon, titanium, aluminum, etc.) in amounts of 5-60 wt%, said sols have a typical solids content of 30 wt%, and solvent. The acrylate polyols are typically derived from hydroxyl-functional acrylates, (meth)acrylic acid, epoxy-functional acrylates, and combinations thereof. Articles coated with said coating composition are formed by applying said coating composition to a substrate (e.g., structures, etc.) by shaping the coating composition into a layer, followed by curing said composition to form a durable, stainproof, abrasion resistant coating. (entire document, e.g., paragraphs 1-4, 7-8, 10, 13-14, 17, 19-20, 25-26, 27, etc.)

However, the reference does not explicitly disclose the recited inorganic particles.

ANDERSON ET AL '519 discloses that it is well known in the art to incorporate fine inorganic particles (e.g., oxides of silicon, titanium, aluminum, etc.) having a typical diameter of 0.001-50 microns in amounts of 0.01-75 wt% in polymer-based (e.g., polyurethane, etc.) coating systems in order to provide enhanced adhesion and abrasion resistance. The reference also discloses that said particles are incorporated in coatings via a colloidal particle dispersion -- i.e.,

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a sol or organosol. The reference also discloses that it is well known in the art to surface modify the particles with organic groups to improve compatibility with the resin binder. The reference also discloses that polyurethane binders are derived from the reaction of polyols and polyisocyanate compounds. The reference also discloses that it is well known in the art to utilize polyamines (e.g., aromatic diamine, etc) as curing agents for isocyanate-functional resins. (line 65, col. 7 to line 3, col. 8; line 63, col. 9 to line 59, col. 10; line 63, col. 13 to line 5, col. 14; line 58, col. 14 to line 6, col. 15; line 52, col. 28 to line 5, col. 29; line 7-30, col. 31; line 12-28, col. 35; line 31-48, col. 46; etc.)

KUBOTA ET AL disclose that it is well known in the chemical art that the term "inorganic oxide sol" refers to a colloidal solution comprising a dispersion medium (e.g., water and/or organic solvent) and a dispersoid composed of ultrafine inorganic oxide particles. The reference further discloses that the term "organosol" refers to a sol wherein the dispersion medium is an organic solvent. (line 19-40, col. 4)

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate effective amounts of known surface modified inorganic filler particles as disclosed in ANDERSON ET AL '519 in the coating compositions of JP '677 in order to improve adhesion to substrates and to provide increased hardness and abrasion resistance. It also would have been obvious to incorporate known curing agents for polyurethane-based binders (claims 67-68) as disclosed in ANDERSON ET AL '519 into the coatings of JP '677 in order to improve durability and abrasion resistance. One of ordinary skill in the art would have selected the type of surface modification (e.g., type of functional and/or reactive groups, etc.) (claims 61, 74, 75) on the particle surfaces based on the specific binder resin used to

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improve compatibility and bonding between the particles and the resins. One of ordinary skill in the art would have selected the type and amount of particles, binder, and fluoropolymer in order to obtain the specific abrasion resistance and surface characteristics (claims 79-82) and/or chemical resistance (claim 88) for specific applications, especially since highly fluorinated coatings typically have a high degree of chemical resistance. It would have been obvious to utilize the coatings of JP '677 in conventional protective and stain-resisting applications (e.g., for structures, etc.) (claim 84) where durable, stain resistant curable based coatings are typically used. One of ordinary skill in the art would use a known functionalized low molecular weight fluoro-oligomer (claims 85-86) as the fluoropolymer component of the coating composition and or would have selected known polyols with both hydroxyl and carboxyl reactive groups (claim 87) depending on the curing properties, flexibility, and other physical properties required in the coating by specific applications. Since it is well known in the art (as illustrated in ANDERSON ET AL '519) that hydroxyl and/or carboxyl groups and/or isocyanate groups are capable of reacting with each other, the Examiner has reason to believe that the functional groups of the functionalized fluoropolymer of JP '677 are capable of chemically reacting with the reactive functional groups in the polyol and isocyanate components of the polymer binder to at least some degree to form a curable or cured coating layer, therefore the Examiner has basis for shifting the burden of proof to applicant as in *In re Fitzgerald et al.*, 205 USPQ 594.

5. Claims 61, 74-75 are rejected under 35 U.S.C. 103(a) as being unpatentable over:

JP 04-292677 (JP '677), in view of ANDERSON ET AL (US 6,387,519), and in view of KUBOTA ET AL (US 6,039,796),

as applied to claim 52, 70 above,

and further in view of KAYANOKI (US 6,703,131).

KAYANOKI discloses that it is well known in the art to surface treat inorganic oxide particles used as fillers in urethane-based coating compositions with amine-based compounds in order to improve uniform dispersibility and to avoid undesirable agglomeration of particles.

(line 13-15, col. 4; line 19-42, col. 5)

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to surface modify the inorganic particles of JP '677 with known reactive functional groups as disclosed in KAYANOKI order to improve compatibility between the particles and the resins, as well as to prevent particle settling and agglomeration which would result in a non-uniform or defective surface.

6. Claims 85-86 are rejected under 35 U.S.C. 103(a) as being unpatentable over:

JP 04-292677 (JP '677), in view of ANDERSON ET AL (US 6,387,519), and in view of KUBOTA ET AL (US 6,039,796),

as applied to claim 52, 70 above,

and further in view of JP 2001-081131 (JP '131).

JP '131 discloses that it is well known in the art to utilize fluorinated oligomers with functional end groups and having a typical molecular weight of 1,000-10,000 in curable coating compositions in order to provide enhanced curing and hardness properties. (paragraphs 0-0011, 0109-0110)

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It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a known functionalized low molecular weight fluoro-oligomer as the fluoropolymer component of the coating composition of JP '677 depending on the curing properties, flexibility, and other physical properties required in the coating by specific applications.

### ***Response to Arguments***

7. Applicant's arguments filed 5/13/2011 have been fully considered but they are not persuasive.

(A) Applicant requests that the English translation of JP '677 be officially made of record. However, the English translation of JP '677 has already been made of record, as clearly listed in the PTO-892 attached to the Office Action mailed 11/15/2010, as evidenced by the copy of the English translation of JP '677 included with the Office Action mailed 11/15/2011.

(B) Applicant argues that JP '677 fails to disclose the claimed invention because the reference only discloses an "inorganic organosol" which is allegedly "particle-free". However, it is well known in the art that the term "sol" refers to a colloidal solution comprising a dispersion medium (e.g., water and/or organic solvent) and a dispersoid composed of ultrafine inorganic oxide particles and that the term "organosol" refers to a sol wherein the dispersion medium is an organic solvent, as evidenced by KUBOTA ET AL. As further evidence, see the definition of the term "sol" as presented in Wikipedia, which describes a sol as: "a colloidal suspension of very small solid particles in a continuous liquid medium.", as well as YOSHITAKE ET AL (US 7,737,187) and CAMPBELL (US 7,629,403) and SADVARY ET AL (US 6,225,434), all of



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which clearly indicate that the terms "sol" and/or "organosol" refer to liquid dispersions containing particles. Therefore, contrary to Applicant's assertions that the organosol of JP '677 are "particle-free", one of ordinary skill in the art would understand that the references to "sol" and "organosol" in JP '677 refer to dispersions containing solid inorganic particles.

(C) Applicant argues that ANDERSON ET AL fails to explicitly disclose the exact same binder systems as JP '677. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). ANDERSON ET AL is relied upon to illustrate the typical amounts and types of particles incorporated into polyurethane-based coatings to improve hardness. Applicant has not provided any evidence to indicate that the polyurethane-based coatings in JP '677 are so different from the polyurethane-type coatings in ANDERSON ET AL as to render the teachings in ANDERSON ET AL regarding typical particle types, sizes, and/or amount used in polyurethane-type coatings wholly inapplicable.

(D) Applicant argues there is no motivation to combine JP '677 and ANDERSON ET AL because the compositions of JP '677 are "particle-free" while the compositions of ANDERSON AL contain particles. In response to applicant's argument that there is no teaching, suggestion, or motivation to combine the references, the examiner recognizes that obviousness may be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art.

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See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988), *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992), and *KSR International Co. v. Teleflex, Inc.*, 550 U.S. 398, 82 USPQ2d 1385 (2007). In this case, as previously discussed above, Applicant's assertion that the compositions of JP '677 are "particle-free" is incorrect because one of ordinary skill in the art would understand that the terms "metal oxide sols" and "inorganic organosol" in JP '677 to refer to dispersions containing metal oxide particles and inorganic particles, respectively -- therefore, JP '677 clearly discloses compositions contain inorganic particles, which is fully consistent with use of inorganic particles in the compositions of ANDERSON ET AL. Furthermore, ANDERSON ET AL explicitly states that the inorganic particles are typically incorporated into the coating compositions in the form of colloidal particle dispersions (ANDERSON ET AL, line 7-30, col. 15), such as "sols, such as an organosol, of the particles. These sols can be of a wide variety of small-particle, colloidal silicas . . . ." (emphasis added) (ANDERSON ET AL, line 59-61, col. 14)

(E) Applicant argues that the coatings in ANDERSON ET AL have a gradient in particle content in the coating. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., the lack of a concentration gradient in the coating) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Furthermore, the coatings with non-uniform concentration of particles merely constitute one embodiment of the coatings of ANDERSON ET AL, but the reference does not indicate that such a particle concentration gradient is a critical or essential feature of the disclosed coatings.

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(F) In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., high alkali-resistance) are not recited in the majority of the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). The majority of the claims merely require an alkali resistant coating, but does not require any specific degree or duration of alkali resistance -- therefore, since fluorinated coatings are typically known for being chemically resistant due to the presence of the fluorine content, one of ordinary skill in the art would reasonably believe that the fluorinated coatings in JP '677 would have at least some degree of alkali resistance. With respect to claim 88, Applicant has not provided any evidence to indicate that one of ordinary skill in the art would be incapable of selecting the particular formulation of a coating (e.g., with respect to the type and/or amount of fluorinated components, degree of curing, etc.) to meet the recited degree of alkali resistance.

(G) Applicant argues that KAYANOKI ET AL fails to cure the purported deficiencies of JP '677 and ANDERSON ET AL. Applicant's arguments with respect to the alleged deficiencies of JP '677 and ANDERSON ET AL have been fully addressed above.

*Conclusion*

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to VIVIAN CHEN whose telephone number is (571) 272-1506. The examiner can normally be reached on Monday through Thursday from 8:30 AM to 6 PM. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Callie Shosho, can be reached on (571) 272-1123. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

The General Information telephone number for Technology Center 1700 is (571) 272-1700.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

September 25, 2011

/Vivian Chen/

Primary Examiner, Art Unit 1787